MOAB Ground/Surface Water Subcommittee Meeting Notes

October 17, 2001

Held at the DOE Grand Junction Office

Grand Junction, Colorado

Attendees: See attached
Handouts: Meeting Agenda, DOE Viewgraphs, Goals and Objectives.

I. Purpose and Objectives of Subcommittee

In response to a question from Dan Kimball, NPS, Ray Plieness, DOE, indicated that the Groundwater Subcommittee and the larger stakeholder committee will be continued. DOE will chair the meetings, however, membership is open and may change. Audrey Berry, DOE, expressed a desire to keep the subcommittee meetings informal. There was consensus to keep the focus primarily on information sharing and exchange, and not decision making. Additional membership should include representation from Grand County, and possibly BLM, USGS, and COE.

Frequency of meetings will be determined by the need to share technical information.

Audrey Berry, DOE, provided the following summary regarding the site transition.

- The Plan for Remediation will be given to the National Academy of Science by the end of October 2001.
- The Plan will not include a recommended alternative.
- The site will be transferred to DOE on October 30, 2001.
- DOE will hold a public meeting in late November or early December.
- NAS will hold a public meeting during the week of January 12, 2002.
- The Plan for Remediation will be sent to all subcommittee members.

In response to a question from Paul Mushovic, EPA Region 8, Tracy Plessinger, DOE, indicated the Environmental Impact Statement will be updated after the decision is made regarding placement of the disposal cell, next fiscal year.

A list of documents obtained by DOE was made available to the group. DOE agreed to copy documents as necessary. Many in the group did not have a copy of the latest characterization and alternatives evaluation performed by Shepherd Miller, Inc. There was some discussion about additional documents from USGS and SRK being published soon. These will be made available to the group when available.

II. Ground Water/Surface Water Goals and Objectives

A. Immediate Goals – agreement was reached to pursue an immediate action given the delay in past actions and uncertainty in future funding. The Freshwater Application is the preferred option, but the Groundwater Flow Barrier option should also be evaluated. The action needs to be installed after the Spring runoff in late June or July, not by April as the DOE goals suggested. Bruce Waddell, USFWS, indicated that consultation with his agency would be required. DOE will provide a work plan and forward to subcommittee members for review.

B. Interim Action Goals – the subcommittee supports pursuit of an interim action in parallel with the immediate action. There was a concern that contaminant reduction in the river is not feasible in 2 years. The group discussed the following approach as a reasonable Phase I interim action:

- A series of alluvial extraction wells placed in the highest concentration of ammonia (≈ 600 ft.)
- Wells will be ≈ 20 ft depth and pumped up to 30 gpm total
- A single-lined evaporation pond will be constructed ≈ 10 acres, out of the floodplain
- The appropriate agencies would be willing to explore a CX for NEPA requirements.

DOE will provide a plan for review as the details of the interim action are determined.

C. Long-term Goals – this discussion was postponed; however, long-term goals will follow the process described in the Programmatic Environmental Impact Statement for the UMTRA Ground Water Project. This PEIS provides a process for determining the most cost-effective remedial action strategy that meets the EPA standards. The immediate and interim goals are meant to address the high ammonium levels in the Colorado River that exceed aquatic risk concentrations only. The long-term goals will address all constituents that exceed UMTRA Ground Water standards found in the Code of Federal Register section 40, part 192 or risk-based levels.

III. Overview of characterization and alternatives evaluation by Shepherd Miller Inc.

Toby Wright, SMI, presented an overview of the report entitled *Site Hydrogeologic and Geochemical Characterization and Alternatives Assessment for the Moab Uranium Mill Tailings Site, Moab, Utah*. The report focused on areas near the river and presents a summary of all previous and new data, results of computer modeling of the groundwater, and an evaluation of four remedial action alternatives to address high ammonia in the Colorado River.

The affected area in the Colorado River encompasses approximately 2 acres along the shore starting at the confluence of Moab Wash and extending southeast a maximum of 2200 feet during low water stage in November.

The mill site area is not well characterized and several data gaps may exist including:

- Extent of contamination in soils associated with the emulsion ponds, wood chip ponds, and barium-chloride ponds.
- Existence of organics contamination
- Effect of contamination at the river bottom associated with upwelling from the groundwater.
- Potential conduit associated with the old Moab Wash channel.
- Whether the Colorado River represents the southern boundary for site contamination.
- Location of faults
- Effect of brine upwelling from groundwater extraction

IV. Sampling

A concern was expressed regarding consistency in sampling and analytical methods, as well as sampling locations. DOE intends to send out the Sampling and Analysis Plan and Work Order for review by subcommittee prior to the December sampling. The Sampling and Analysis Plan describes the DOE procedures for the collection, analysis and evaluation of ground- and surface-water samples. The Work Order provides a listing of sampling locations and analytes. A Data Validation Package will be prepared upon completion of analyses. The sampling may include river bottom samples as well as additional transects near the highest concentrations found along the riverbank.

V. Title I UMTRA Compliance Strategies

This discussion was postponed until the long-term goals are addressed, probably next fiscal year. Current activities will focus on addressing the immediate and interim goals. Attendees were encouraged to review the UMTRA Ground Water PEIS, which describes the process for compliance with the EPA standards. Copies of this document are being made available upon request.

VI. Closing Comments

- Agencies will be willing to explore a CX for the immediate and interim remedial actions.
- The frequency of meetings will be driven by project tasks and the need to communicate with all subcommittee members. The next meeting will be held when the plan for the immediate remedial action is available.
- The Sampling and Analysis Plan and Sampling Work Order will be distributed for comment prior to the December sampling event.

- Meeting notes will be prepared by DOE and forwarded to all in attendance as well as previous subcommittee members who could not attend.

Moab Ground/Surface Water Goals and Objectives/Alternative

Immediate Remedial Action Goals

- Ammonia is an immediate and significant risk to endangered fish requiring an Immediate Action for surface water.
- An immediate action would sever the contaminant pathway to fish or reduce exposure to acceptable levels.
- Other COPCs are not immediate risk drivers but reduction of other constituents would be beneficial.
- Immediate action must be in place before April 2002.

Immediate Action Potential Alternatives

- Groundwater flow barrier
- Excavation of sand bar
- Streambank modification
- Fresh water application
- Fish barrier/habitat addition

Interim Remedial Action Goals

- Ammonia is a significant risk to endangered fish requiring an Interim Action for surface water.
- An interim action would sever the contaminant pathway to fish or reduce exposure to acceptable levels.
- Other COPCs are not immediate risk drivers but reduction of other constituents would be beneficial.
- Action must show reduction in ammonia concentrations in surface water within 2 years.
- Implementation of interim action must begin by 10-01-2002.

Interim Action Potential Alternatives

- Habitat and fisheries stock enhancement (not a stand-alone alternative).
- In-situ treatment.
- Groundwater interception with wells/slurry wall and ex-situ treatment.
- Groundwater interception with wells and ex-situ treatment.
- Phytoremediation technologies

Long-Term Remedial Action Goals

- Ground water must meet UMTRA standards (MCLs, ACLs, or background).
- Surface water must meet applicable standards.

Long-Term Remedial Action Alternatives

- Long-term alternatives have not been developed.

November 8, 2001

Project Manager
Department of Energy
Grand Junction Office
2597 B3/4 Road
Grand Junction, CO 81503
ATTN: Don Metzler

SUBJECT: Contract No. DE-AC13-96GJ87335—November 2001 Ground Water Sampling at Moab, Utah

Dear Mr. Metzler:

Attached are maps and tables specifying the sampling locations and analytes for monitoring at the Moab, Utah, UMTRA site. Water quality data will be collected from monitor wells and near the shore of the Colorado River at this site as part of the routine UMTRA Ground Water sampling that is scheduled to begin the week of December 3, 2001. Additional river samples will be collected at the bottom of the main channel at selected locations.

The following lists show the monitor wells, piezometers, and surface locations that will be sampled during this monitoring event.

Monitor Wells (filtered)

AMM-1	AMM-2	AMM-3	ATP-2-S	MW-3	

Piezometers (filtered)

TP-01	TP-02	TP-03	TP-07	TP-08	TP-09

Surface Water Locations (filtered)

CR1	CR2	CR3	CR4	CR5
CRA	CRB	CRC	CRD	CRE

QA/QC samples will be collected as directed in the *Sampling and Analysis Plan for the UMTRA Ground Water Project*. Samples collected for alkalinity will be both filtered and unfiltered. Access agreements for the Moab site are in review and expected to be completed by the start of fieldwork. Water level information will be collected from all sampled wells at the Moab site. Monitor well inspections will be conducted and documented to confirm the status of all sampled wells.

If you have any questions, please call me at extension 6059 or Ken Karp at extension 6564.

Sincerely,

Sam Marutzky
Project Manager

SM/lcg/ld
Attachments

cc w/o att: K. Miller
D. Traub
Contract File (J. Dearborn)
cc w/att: C. Bahrke
R. Chessmore
K. Karp
Project Record File MOABATM 7.33 thru T. Smith

Sampling Frequencies for Locations at Moab, Utah

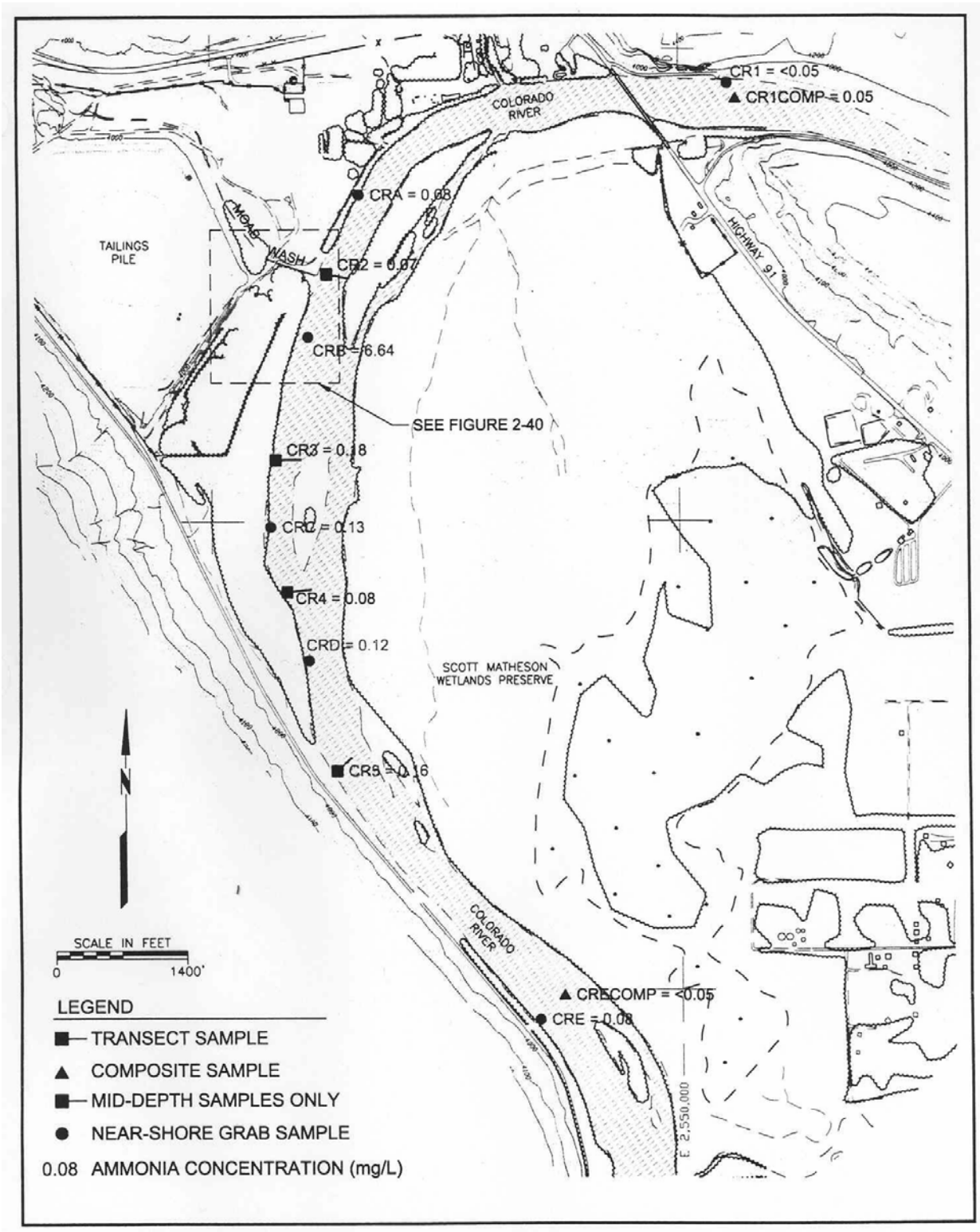
Wells	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Ground Water Project Monitor Wells						
AMM-1		X				
AMM-2		X				
AMM-3		X				
ATP-2-S		X				
MW-3		X				
Piezometers						
TP-01		X				
TP-02		X				
TP-03		X				
TP-07		X				
TP-08		X				
TP-09		X				
Surface Water Locations						
CR1		X				
CR2		X				Sample near shore
NEW		X				In main channel out from CR2
CR3		X				Sample near shore
NEW		X				In main channel out from CR3
CR4		X				
CR5		X				
CRA		X				
CRB		X				Sample near shore
NEW		X				In main channel out from CRB
CRC		X				
CRD		X				
CRE		X				

Constituent Sampling Breakdown

Site	MOAB	
Analyte	**Ground Water**	**Surface Water**
Approx No. Samples\yr	30	10
Field Measurements		
Alkalinity	X	X
Dissolved Oxygen		
Redox Potential	X	X
PH	X	X
Specific Conductance	X	X
Turbidity	X	
Temperature	X	X
Laboratory Measurements		
Aluminum		
Ammonium	X	X
Antimony	X	X
Arsenic	X	X
Barium		
Beryllium		
Bromide		
Cadmium	X	X
Calcium	X	X
Chloride	X	X
Chromium	X	X
Cobalt		
Copper	X	X
Fluoride		
Gamma Spec		
Gross Alpha	X	X
Gross Beta		
Iron	X	X
Lead	X	X
Lead-210	X	X
Magnesium	X	X
Manganese	X	X
Mercury	X	X
Molybdenum	X	X

Site	MOAB	
Analyte	**Ground Water**	**Surface Water**
Laboratory Measurements (Continued)		
Nickel		
Nickel-63		
Nitrate	X	X
PCBs		
Phosphate		
Polonium-210	X	X
Potassium	X	X
Radium-226	X	X
Radium-228	X	X
Selenium	X	X
Silica		
Sodium	X	X
Strontium		
Sulfate	X	X
Sulfide		
Thallium	X	X
Thorium-230	X	X
Tin		
Total Dissolved Solids	X	X
Total Organic Carbon		
Uranium	X	X
Uranium-234, -238		
Vanadium	X	X
VOCs		
Zinc	X	X
Total No. of Analytes	29	29

Note: All analyte samples are considered filtered unless stated otherwise. The total number of analytes does not include the field parameters.



SHEPHERD MILLER INCORPORATED

FIGURE 2-39
APRIL 2000 SURFACE WATER SAMPLING LOCATIONS - AMMONIA

Date:	APRIL 2001
Project:	100554\2000APR
File:	SW-APR-AMM.dwg

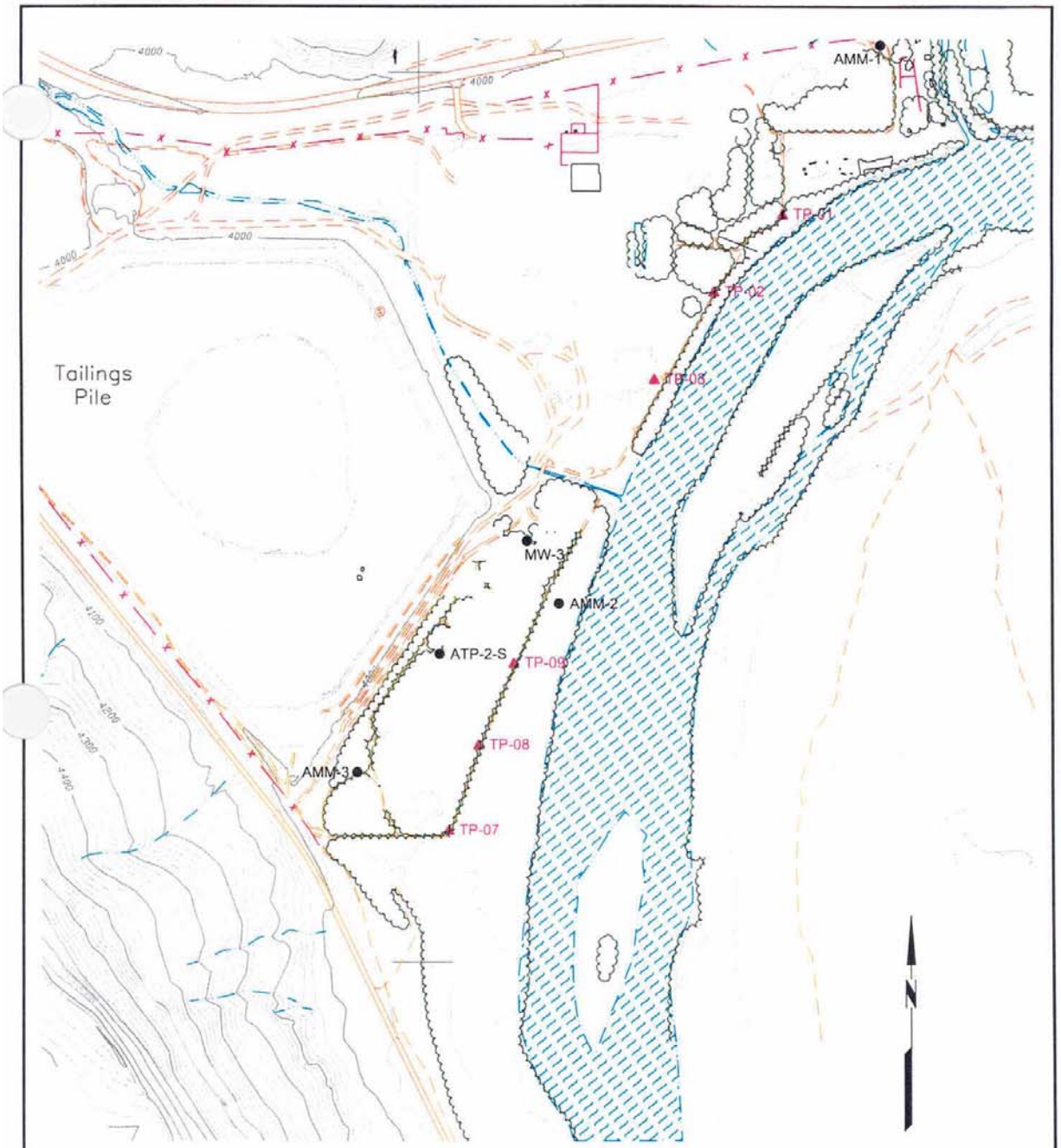


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FIGURE 2
GROUNDWATER
SAMPLING LOCATIONS

Date:	APRIL 2000
Project:	100554
File:	GRNDLOC.dwg